US Army Corps of Engineers
Baltimore District

Washington Aqueduct 1999 Water Quality Report

We are very pleased to provide you with our 1999 Annual Water Quality Report. This report give us a chance to tell you about the excellent water and services we have delivered over the past year.

How does Washington Aqueduct make the water safe to drink?

Our water treatment plants operate in accordance with the Safe Drinking Water Act. These regulations govern and describe the standards for the water we produce.

In 1999, Our average daily production was 100 million gallons at the Dalecarlia treatment plant and 80 million at the McMillan treatment plant. We use a three-step process that includes coagulation and sedimentation, filtration, and disinfection. When raw water enters the treatment plant, coagulants are added to make small particles adhere to a one another. They become heavy and settle to the bottom of a large basin. The settled water is then filtered to remove the remaining fine particles. Next, we add chlorine to kill harmful bacteria and viruses. We use lime for pH control to prevent corrosion in the pipes, fluoride at low levels to protect teeth, and carbon and potassium permanganate to remove odors that could be caused by algae growth in the raw water.

Continuously making improvements is the way we do business at Washington Aqueduct

In 1999, we completed dredging the Dalecarlia Reservoir and modernized many systems to improve the reliability and control of the water treatment process. These included a new lime delivery system, a liquid coagulant feed system, three lime slakers, and two polymer feed systems. We're right on schedule with the construction and equipment installation for the improved disinfection process using chloramine that will go into operation in the fall of 2000. More projects that focus on infrastructure revitalization are underway in 2000.

1999 Laboratory Analyses

Our laboratory performed over 32,000 in-house finished water analyses in 1999. We monitored regulated and unregulated contaminants, and we reported detection levels of the regulated contaminants. The detected regulated contaminants are listed in the table below. There are no known health risks associated with these low levels.

Definitions

MCLG = Maximum Contaminant Level Goal. The level of a contaminant in water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.

MCL = Maximum Contaminant Level. The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.

Turbidity = A measure of the clarity of water. Turbidity has no health effects. Turbidity is a good indicator of the effectiveness of the water treatment process.

TT = Treatment Technique. A required process intended to reduce the level of a contaminant in drinking water.

Glossary

- **ppm- Parts per million, corresponds to one penny in $10,000**
- **ppb- Parts per billion, corresponds to one penny in $10,000,000**
- **pCi/L- Picocuries per liter**
- **NTU- Nephelometric Turbidity Unit**
- **TT- Treatment technique**

1999 Summary Chart of the Detected Regulated Contaminants

Components	Unit	MCL	MCLG	Highest Level Detected	Range	Major Source in Drinking Water
Antimony	ppb	6	6	2	<1.0 - 2	Discharge from petroleum refineries.
Atrazine	ppb	3	3	0.2	<0.1 - 0.2	Runoff from herbicide used on row crops.
Barium	ppm	2	2	0.04	.03 - . 04	Discharge from metal refineries.
Beryllium	ppb	4	4	<1	< 1	Discharge from metal refineries.
Chromium	ppb	100	100	2	< 1. 0 - 2	Discharge from steel and pulp mills.
Fluoride	ppm	4	4	1.1	0.7 - 1.1	Erosion of natural deposits.
Nitrate	ppm	10	10	2.2	1.7 - 2.2	Runoff from fertilizer use.
Nitrite	ppm	1	1	<0.3	< 0.3	Runoff from fertilizer use.
Simazine	ppb	4	4	0.3	<.07 - 0.3	Herbicide runoff.
Thallium	ppb	2	0.5	<1.0	<1.0	Leaching from ore processing site, discharge from electronics, glass, and drug factories.
Alpha Emitters	pCi/L	0	15	1.8	1.0 - 1.8	Erosion of natural deposits. Results are from 1998. The next monitoring period for analyses is 2001.
Beta Emitters	pCi/L	0	50	4.7	2.5 - 4.7	Decay of natural and man-made deposits. Results are from 1998. The next monitoring period for analyses is 2001.

Testing for Bacteria

Extensive testing of the distribution systems occurs each month. Regular sets of samples are collected and analyzed for coliform bacteria with the objective of determining that no E.coli are present. The federal regulation that governs this testing is called the Total Coliform Rule. All results were within the limits prescribed by the rule, and no E.coli were detected in the distribution system samples. Your local utility has reported more specific information in its Consumer Confidence Report. If you do not have that report, contact them at the telephone number listed in the box on page 4.

Special Concerns

Some people may be more vulnerable to contaminants in drinking water than is the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. EPA/CDC guidelines on appropriate means to lessen the risk of infection by Cryptosporidium are available from the Safe Drinking Water Hotline. (**800-426-4791)**

Cryptosporidium

Washington Aqueduct was one of 47 large water utility systems to participate in the Information Collection Rule (ICR) Supplemental Survey for the collection and analysis of Giardia and Cryptosporidium. The sampling period was from April 1999 to February 2000.

Crytosporidium is a single-celled organism that lives and reproduces within the intestines of an animal host. This parasite can cause outbreaks of intestinal disease, but scientists have not yet determined the best testing methods, or the levels at which a public health danger occurs. Using the state-of-the art technology to remove Cryptosporidium at our treatment plants minimizes the risk to public health. EPA does not require testing of finished water unless concentrations in raw water exceed 10 oocysts per liter. All raw water tests performed in 1999 were below the EPA threshold.

Clarity Characteristics Tested at the Treatment Plants

EPA limit	Unit	Highest detected measurement	95% of samples must be at or below 0.5 NTU for monthly compliance	Source
TT	NTU	.16	100% of samples < 0.5 NTU	Soil Run-off

The low level turbidity measurements showed how Washington Aqueduct removed particles that could not be seen by the human eye. Higher quality water has low turbidity.

Safe Drinking Water Hotline

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information can be obtained by calling the Environmental Protection Agency's Safe Drinking Water Hotline (800-426-4791).

What's the Source of your Water

The water produced by Washington Aqueduct comes from the Potomac River. Most of the water is drawn at Great Falls and comes to the Dalecarlia Reservoir by gravity in two,10-mile long conduits. We supplement that with water pumped to the Dalecarlia Reservoir from Little Falls.

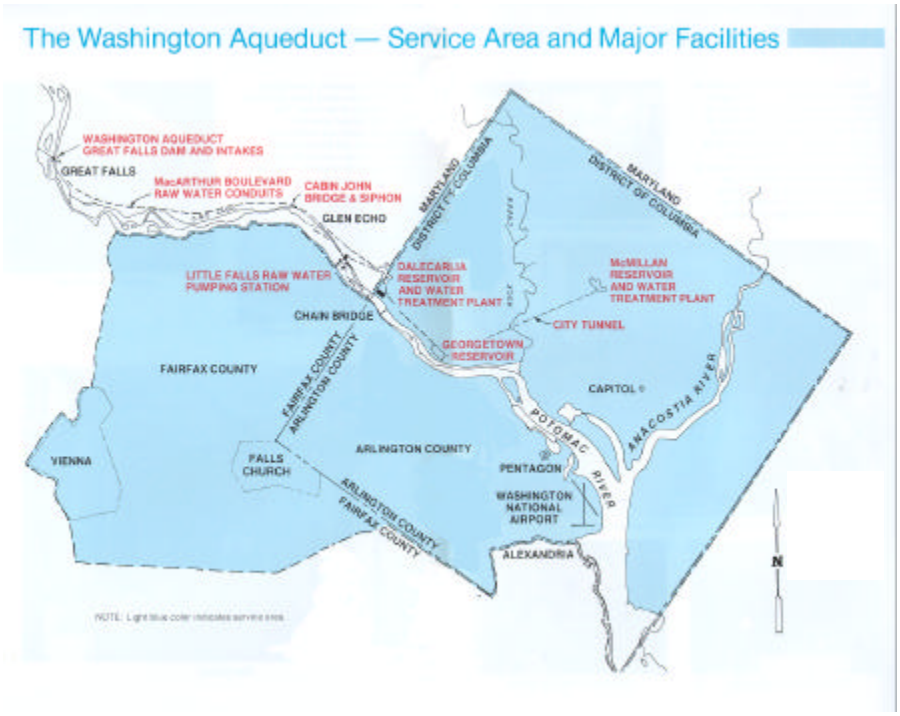
For Further Information Contact:

Washington Aqueduct: Office of the Chief, (**202) 764-0019**

DCWASA: Dept. of Water Services **(202) 612-3434**

Arlington County: Dept. of Public Works, Water, Sewer & Streets **(703) 228-6578**

Falls Church: Dept. of Environmental Services **(703) 248-5070**



Source Water Characteristics

As water travels over the surface of the land or through the ground, it dissolves naturally-occurring minerals and radioactive material, and can pick up substances resulting from the presence of animals or from human activity. The treatment plants are designed to deal with these substances and can remove them to levels allowable by federal regulation.

Contaminants that may be present in your source water include:

- Microbial contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.
- Inorganic contaminants, such as salts and metals, which can be naturally occurring or result from urban storm water runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming.
- Pesticides and herbicides, which may come from a variety of sources such as agriculture, urban storm water runoff, and residential uses.
- Organic chemical contaminants, including synthetic and volatile organic chemicals, which are byproducts of industrial processes and petroleum production. These contaminants can also come from gasoline storage, urban storm water runoff, and septic systems.
- Radioactive contaminants, which can be naturally occurring or be the result of oil and gas production and mining activities.